

### **REMARKS**

Claims 1-7 and 9-19 are now pending in the application. Claims 1-9 stand rejected. Claims 8 has been cancelled herein. Claims 1-7, and 9 have been amended; support for which can be found throughout the application as originally filed. Support for newly added Claims 10-19 can be found throughout the application as originally filed, and in particular in paragraphs [0030] – [0044] and Figures 1, 5, 7, and 8. As such, no new matter has been presented. The Examiner is respectfully requested to reconsider and withdraw the objections and rejections in view of the amendments and remarks contained herein.

### **SPECIFICATION**

The specification stands objected to for certain informalities. Applicants have amended the specification according to the Examiner's suggestions. Therefore, reconsideration and withdrawal of this objection are respectfully requested.

### **DRAWINGS**

Applicants have attached revised drawings for the Office's approval. In the following Replacement Sheets changes have been made to correct various informalities and improve the clarity of the drawings. In Replacement Sheets 2/6, 4/6, and 6/6, reference number 34 has been added in the lower left portion of the Figures 2, 4, and 9. In Replacement Sheets 4/6 and 6/6, depending portion 33 has been changed from reference number 18 in the lower right portion of Figures 4 and 9. In Replacement Sheet 6/6, reference number 35 has been added to the bottom right portion of Figure 6 to improve

clarity. Further, reference numbers 36, 37, 38, and "L" have been added to Figure 8 to improve clarity.

#### **CLAIM OBJECTIONS**

Claim 6, 7, and 9 stand objected to for certain informalities. Applicants have amended Claims 6, 7, and 9 according to the Examiner's suggestions. Therefore, reconsideration and withdrawal of this objection are respectfully requested.

#### **REJECTIONS UNDER 35 U.S.C. § 112**

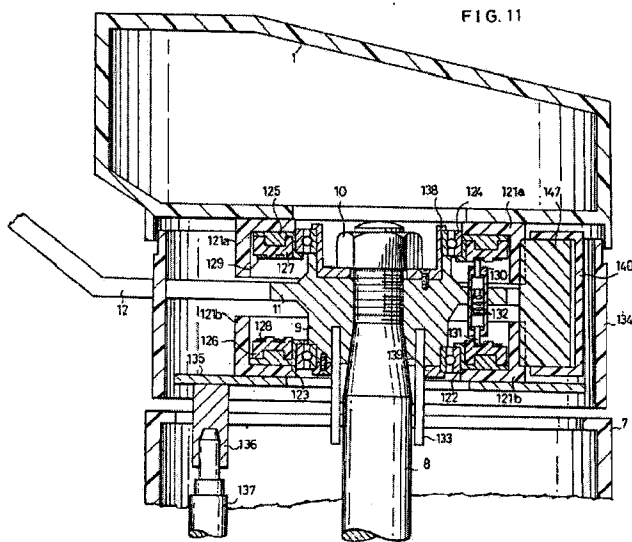
Claims 6, 7, and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. This rejection is respectfully rendered moot by the amendment of independent Claims 6 and 9. Applicants have omitted the word "spring" from the term "spring plate" as "plate" refers to the anti-backlash gear plates. Accordingly, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claims 6 and 9 under 35 U.S.C. § 112, second paragraph.

As Claim 7 depends from Claim 6, it should similarly be in condition for allowance. Therefore, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claim 7 under 35 U.S.C. § 112, second paragraph.

## REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Hiramitsu et al. (U.S. Pat. No. 4,796,482, hereinafter "Hiramitsu"). This rejection is respectfully traversed.

Initially, Applicants note that Hiramitsu discloses a steering wheel assembly including a steering ring (13), spokes (12), a stationary pad (1), and a steering column



(7). See Hiramitsu Col. 3, Lines 38-55 and Figure 11 reproduced to the left. A pad-side, helical sun gear is attached to the stationary pad (1) and a column-side, helical sun gear (121b) is attached to the steering column (7). See Hiramitsu Col. 10, Lines 52-59. A single, helical planetary gear (147) is in gear with the spaced apart, helical sun gears (121a, 121b).

See Hiramitsu Col. 11, Lines 62-66. Further, a pad-side, helical planetary gear (146a) is in gear with the pad-side, helical sun gear (121a) and a column-side, helical planetary gear (146b) is in gear with the column-side, helical planetary gear (121b). See Hiramitsu Col. 11, Lines 49-61. Two parallel pins (106) and a spring (107) mounted between the planetary gears (146a, 146b) work together to suppress backlash. See Hiramitsu Col. 4, Lines 54-66 and Col. 10, Lines 1-7.

In contrast, Applicants amended Claim 1 recites:

...a second gear element **mounted on or mountable on a steering column**, said first and second gear elements **inter-engaging one another**...

In view of the above discussion, Applicants assert that Hiramitsu does not teach, suggest or disclose each and every element of Claim 1. In particular, Hiramitsu fails to disclose that the “second gear element [is] mounted on or mountable on a steering column.” The Office has likened the helical planetary gear (147) to the second gear element. However, the helical planetary gear (147) is instead mounted to an upper bearing (145a) and a lower bearing (145b) and only in gear with the two sun gears (121a, 121b). See *Hiramitsu Col. 11, Lines 62-65*. The gear mounted on the steering column is, instead, the column-side, helical planetary gear (121b). See *Hiramitsu Figure 9*. However, this comparison also fails because the helical sun gears (121a, 121b) are parallel and not inter-engaged.

Additionally, Applicants have amended Claim 1 to recite that “at least one anti-backlash gear [is] mounted directly on one of said gear elements” and that the “anti-backlash gear is held in position by a retaining washer.” The Office Action expressly states that this “direct mounting” limitation is not found in Hiramitsu [gear (146a) is not directly on top of gear (121a)]. See *Office Action at Page 4, Bullet 2*. Further, Hiramitsu fails to disclose a retaining washer for holding the anti-backlash gear in position.

Accordingly, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claim 1 under 35 U.S.C. § 102(b). As Claims 2-8 directly or indirectly depend from Claim 1, they should similarly be in condition for allowance. Therefore, Applicants respectfully request the Office to reconsider and withdraw the rejections of Claims 2-8 under 35 U.S.C. § 103(a).

Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Laurent et al. (EP Pat. No. 1,199,243, hereinafter "Laurent") in view of Wegert (U.S. Pat. No. 1,564,160). Claims 4-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Laurent in view of Wegert as applied to Claims 1-3 above and further in view of Maccoul (U.S. Pat. No. 2,092,888) and Erickson (U.S. Pat. No. 1,486,423). These rejections are respectfully traversed.

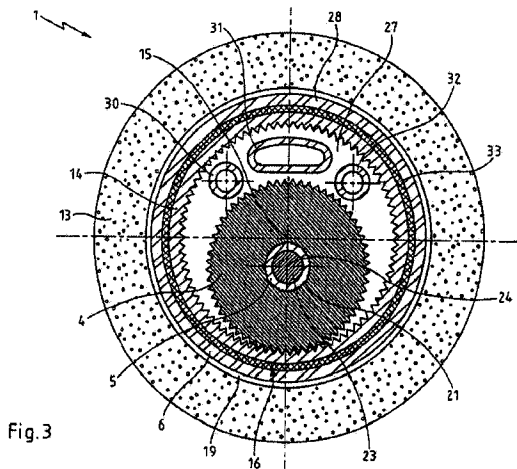
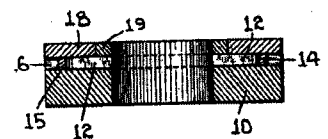


Fig. 3

Applicants note that Laurent discloses a steering wheel (2) having a pinion (4) and a ring gear (14). See Laurent at Figures 1 and 3 (Figure 3 shown to the left). Wegert discloses an anti-backslap gear (10) including a pair of leaf springs (12) inserted therein for preventing noise in a motor between gears connecting a camshaft and a crankshaft. See Wegert

at Lines 10-27 and Figure 2 reproduced to the right. Ends of the leaf springs (12) engage a ring (15). See Wegert at Lines 27-28. Rivets or screws rigidly secure another ring (18) to the anti-backslap gear (10). See Wegert at Lines 40-46. Teeth (11) of the anti-backslap gear (10) are held in alignment with teeth (17) of the ring (18), but out of alignment with teeth (16) of the ring (15). See Wegert at Lines 37-41. As such, teeth (16) are resiliently held against one side of a meshing tooth, while teeth (11, 17) are in engagement with the opposed face of the next tooth and this relationship persists. See Wegert at Lines 47-55.

Fig. 2.



In contrast, Applicants amended Claim 1 recites:

...said at least one anti-backlash gear being rotatably biased relative to said gear element upon which it is mounted towards a position in which **said teeth of said at least one anti-backlash gear are displaced from said corresponding teeth of said gear element**, wherein said at least one anti-backlash gear is **held in position by a retaining washer**.

In view of the above discussion, Applicants assert that Laurent, in combination with Wegert, does not teach, suggest or disclose each and every element of Claim 1. In particular, Laurent and Wegert fail to disclose an anti-backlash gear having teeth displaced from corresponding teeth of a gear element. In fact, Wegert explains that the contact will persist “no matter how much the teeth of [the] gears become worn.” See *Wegert at Lines 52-54*. Further, neither Laurent nor Wegert disclose a retaining washer for holding the anti-backlash gear in position.

Accordingly, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claim 1 under 35 U.S.C. § 103(a). As Claims 2-8 directly or indirectly depend from Claim 1, they should similarly be in condition for allowance. Therefore, Applicants respectfully request the Office to reconsider and withdraw the rejections of Claims 2-8 under 35 U.S.C. § 103(a).

Additionally, Applicants note that Claim 9 recites all limitations found in Claims 1-8. Therefore, for at least the reasons previously noted, Claim 9 should be in condition for allowance. Accordingly, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claim 9 under 35 U.S.C. § 103(a).

### NEW CLAIMS

New Claims 10-19 are added herein for consideration. Applicants respectfully submit that independent Claim 10, as well as Claims 11-19, dependent therefrom, are in condition for allowance.

### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: 8 Oct 8

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